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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/814,658 | 03/21/2001 | Dexter Chun | 259/068 | 4338 |

7590 10/04/2004
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EXAMINER

GREY, CHRISTOPHER

ART UNIT PAPER NUMBER

2667

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 09/814,658 | Applicant(s) CHUN ET AL. | |
| | Examiner Christopher P Grey | Art Unit 2667 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>1</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "40a" from Fig 1 has been used to designate both a TUB and a GPS receiver. The drawings are also objected to because element 12 in Fig 1 claims to be a PSNT (rather than a PSTN). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 3, 4, 7, 8, 13, 14, 16, 19, 20, 21, 22, 23, 24, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petch (WO 98/21897) in view of Lundh et al. (US 6577872)

Claim 1, 13, 21, 23, 24 and 26 Petch discloses a method within the field of communication networks for acquiring and maintaining synchronization in a wireless communication network. Disclosed in elements 16, 12 and 14 are major components of a wireless network in a BSC, BS and MS respectively (claim 24). As is well known to those skilled in the art the BSC works in conjunction with the BS. Petch discloses a BSC comprising a master clock circuit (local timer- see element 40 in Fig 2) that generates a clock signal, and Petch also discloses a GPS receiver (timing unit- see element 48 in Fig 2) that delivers an accurate timing pulse (claim 23 and 26). Upon reception of the GPS pulse, the base station determines whether the internal counter needs to be adjusted (disclosed on page 14 lines 9-25). Petch does not disclose a predetermined time offset.

Lundh et al. ('Lundh' hereinafter) discloses within a cellular telecommunications network a synchronization method comprising a BSC that further comprises a master timing unit and slave timing unit. Lundh discloses an exemplary goal of his invention which is to

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synchronize values in the nodes (nodes imply the use of processor boards) with alignment errors (predetermined offset) tolerable -1 msec and $+1$ msec (disclosed in Col 8 lines 39-58).

Claim 2 and 14 Petch does not disclose the predetermined time offset being approximately 1ms.

Lundh discloses an exemplary goal of his invention with alignment errors (predetermined offset) tolerable -1 msec and $+1$ msec (disclosed in Col 8 lines 39-58).

Claims 3, 22 and 25 Petch discloses in Fig 1 BS's (elements 12) communicating with a BSC (element 16). Each BS is equipped with a GPS receiver that transmits a timing pulse to the BSC (disclosed on page 14 lines 9-25). One skilled in the art can appreciate the reception of GPS timing pulses in an alternating manner.

Claim 4 and 16 Petch does not disclose the timing cells being transmitted to the processor boards over an ATM network.

Lundh discloses nodes that utilize ATM cells as disclosed in Col 6 lines 43-61.

Claim 7 and 19 Petch does not disclose a processor board not realigning its local timer with time information contained in a received timing cell when a time difference between its local timer and the time information contained in the received timing cell exceeds an error threshold, the error threshold being greater than the time offset.

Lundh discloses an uncertainty (error threshold) of no more than ± 2 ms as disclosed in Col 8 lines 39-58.

Claim 8 and 20 Petch does not disclose the error threshold being approximately 2 ms.

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Lundh discloses an uncertainty (error threshold) of no more than ± 2 ms as disclosed in Col 8 lines 39-58.

Therefore it would have been obvious to one of the ordinary skill in the art, at the time of the invention, to be able to modify the method and components, particularly the BSC receiving from a GPS satellite a GPS timing pulse that is able to synchronize an internal counter within the BSC, as disclosed by Petch, with the RNC of Lundh, which uses a timing unit (which would be modified as a GPS timing unit) in order to synchronize its internal timer (using ATM cells), based on a predetermined offset and other means. Both Petch and Lundh have the common goal of synchronization, and achieve their inventions by similar and well known means. The motivation for this modification is to achieve, within a wireless communication network, a method of synchronization that enables continuous and accurate synchronization and allows more control of adjustments necessary for synchronization.

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3. Claims 5, 6, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petch (WO 98/21897) in view of Lundh et al. (US 6577872) in further view of Sayers (WO 00/69102)

Claim 5 and 17 Petch and Lundh do not disclose the timing cells transmitted to the processor boards over an Ethernet network

Sayers discloses a method within a wireless communication network for synchronizing clock signals in wireless networks. Sayers discloses a Lan network connecting slave BTSs to master BTS's (page 26 line17 page 27 line2)

Claim 6 and 18 Petch and Lundh do not disclose the timing cells transmitted to the processor boards over a universal serial bus.

Sayers discloses a clock synchronizer, which functions to select received master clock signals to provide a synchronized master clock signal to the local clock, connected to a clock distributor via a control bus (see element 9-50 in fig 7 and page 24 lines 1-13)

Therefore it would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the concept of Petch and Lundh's inventions, which were previously mentioned, by further applying the option of an Ethernet network or universal serial bus as a means of communication as disclosed by Sayers. Sayers shares the common goal of synchronization, and discloses the option and advantages of employing a control bus and Ethernet connection. The motivation for this modification is to have a faster and more reliable means of transmission.

4. Claims 9, 10, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petch (WO 98/21897) in view of Lundh et al. (US 6577872) in further view of Cho (US 6212170)

Claim 9 Petch discloses all of the limitations of claim 9 and Lundh further concentrates on the operation of the BSC when the error threshold is not exceeded. Lundh further discloses a master timing unit setting a *within range flag* (flag status) which indicates the error threshold not being reached (disclosed in Col 13 lines 53- 63). Lundh does not disclose specifically a memory. Cho discloses a control device that manages status and information of boards in a clock distributor for use in a BSC. Cho discloses memory for storing the status of installation/abnormality (flag status) of boards as disclosed in Col 2 line65- Col 3 line 12

Claim 10 Petch discloses all of the limitations of claim 10 and though Lundh concentrates on the error threshold being within the given range, with the application of a *within range flag*, Lundh implies that when the threshold of +/-2 ms (addressed in claims 7 and 8) is exceeded, an out of range flag is set (disclosed in Col 13 lines 53- 63).

Claim 11 Petch and Lundh disclose all of the limitations of claim 11 but fails to disclose a main processor having a local database for periodically retrieving the fault status flag from the processor boards and storing the retrieved fault status flag in the local database; and a resource manager for assigning incoming calls to the processor boards based on the retrieved fault status flag.

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Cho discloses an alarm control interface processor (main processor) that reads the information of the respective boards (monitors operational status) and the memory addressed in claim 9 for storing this information (disclosed in Col 2 line65- Col 3 line 32). Cho discloses an operator (resource manager) that receives the status information and is capable of managing the status and dual information of the respective boards as disclosed in Col 5 lines 23–31

Claim 12 Petch and Lundh disclose all of the limitations of claim 12 but fails to disclose the resource manager not assigning incoming calls to a processor board when the retrieved fault status flag of the processor board indicates an inoperable timing condition.

Cho discloses an operator (resource manager) that receives the status information and is capable of managing the status and dual information of the respective boards as disclosed in Col 5 lines 23 –31. It can be appreciated by one skilled in the art that if the status of a board is inoperable the operators duty would be to no longer assign incoming calls to that board.

Therefore it would have been obvious to one of the ordinary skill in the art at the time of the invention to further modify the concepts of Petch and Lundh that were previously mentioned, with the control unit provided in Cho's invention. The disclosed control unit is designed to be applied in a BSC (eg. BSC disclosed in Petch's invention) and is capable of managing the status of processor boards in the BSC and indicating any sudden changes in synchronization.

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Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P Grey whose telephone number is (571)272-3160. The examiner can normally be reached on 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571)272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher Grey
Examiner
Art unit 2667
CPG
9/29/04


AFSAR QURESHI
PATENT EXAMINER 9/28/04